



NVLAP LAB CODE 200707-0



ETSI EN 301 406 V1.5.1 (2003-07)
MEASUREMENT AND TEST REPORT
For
Shenzhen Guo Wei Electronics Co. Ltd.

No.68 Guo Wei Road, Liantang Industrial District, Shenzhen, Guangdong, P.R.C

Model: DECT70-C22

This Report Concerns: <input checked="" type="checkbox"/> Original Report		Equipment Type: DECT Cordless Phone
Test Engineer:	Vicent Kang <i>Vicent. Kang</i>	
Report Number:	RSZ08052805-13handset	
Test Date:	2008-06-06	
Report Date:	2008-06-06	
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TABLE OF CONTENTS

GENERAL INFORMATION.....	3
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	3
OBJECTIVE	3
RELATED SUBMITTAL(S)/GRANT(S).....	3
TEST METHODOLOGY	3
TEST FACILITY	3
SYSTEM TEST CONFIGURATION.....	5
DESCRIPTION OF TEST CONFIGURATION	5
EQUIPMENT MODIFICATIONS	5
CONFIGURATION OF TEST SETUP	6
BLOCK DIAGRAM OF TEST SETUP	6
SUMMARY OF TEST RESULTS	7
ETSI EN 301 406 V1.5.1 (2003-07) §4.5.6.5 SPURIOUS EMISSIONS WHEN ALLOCATED A TRANSMIT CHANNEL.....	8
APPLICABLE STANDARD	8
TEST PROCEDURE	8
TEST EQUIPMENT LIST AND DETAILS.....	10
TEST DATA	10
ETSI EN 301 406 V1.5.1 (2003-07) §4.5.7.7 - SPURIOUS EMISSIONS WHEN THE PP HAS NO ALLOCATED TRANSMIT CHANNEL.....	12
APPLICABLE STANDARD	12
TEST PROCEDURE	12
TEST EQUIPMENT LIST AND DETAILS.....	12
TEST DATA	13
EXHIBIT A - EUT PHOTOGRAPHS.....	14
EUT - TOP VIEW.....	14
EUT - BOTTOM VIEW	14
EUT - COVER OFF VIEW.....	15
EUT - MAIN BOARD TOP COMPONENTS VIEW.....	15
EUT - MAIN BOARD BOTTOM COMPONENTS VIEW	16
EXHIBIT B - TEST SETUP PHOTOGRAPHS	17
RADIATED EMISSIONS - FRONT VIEW (BELOW 1GHz).....	17
RADIATED EMISSIONS - REAR VIEW (BELOW 1GHz).....	17
RADIATED EMISSIONS - FRONT VIEW (ABOVE 1GHz)	18
RADIATED EMISSIONS - REAR VIEW (ABOVE 1GHz)	18

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Shenzhen Guo Wei Electronics Co. Ltd.*'s product, model number: *DECT70-C22* or the "EUT" as referred to in this report is a *DECT Cordless Phone*, which measures approximately: 16 cm L x 4.8 cm W x 2.5 cm H, rated input voltage: DC 2.7 V battery.

** All measurement and test data in this report was gathered from production sample serial number: 0805046 (Assigned by BACL, Shenzhen). The EUT was received on 2008-05-28.*

Objective

The following test report is prepared on behalf of *Shenzhen Guo Wei Electronics Co. Ltd.* in accordance with ETSI EN 301 406 V1.5.1 (2003-07).

Digital Enhanced Cordless Telecommunications (DECT); Harmonized EN for Digital Enhanced Cordless Telecommunications (DECT) covering essential requirements under article 3.2 of the R&TTE Directive; Generic radio.

The objective of the manufacturer is to determine compliance with ETSI EN 301 406 V1.5.1 (2003-07).

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

All measurements contained in this report were conducted with ETSI EN 301 406 V1.5.1 (2003-07).

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp.(Shenzhen) to collect test data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 04, 2004. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



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The current scope of accreditations can be found at
<http://ts.nist.gov/Standards/scopes/2007070.htm>

SYSTEM TEST CONFIGURATION

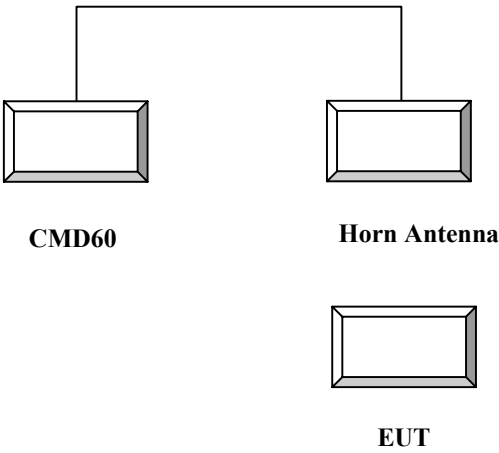
Description of Test Configuration

The system was configured for testing in a typical fashion (as normally used by a typical user).

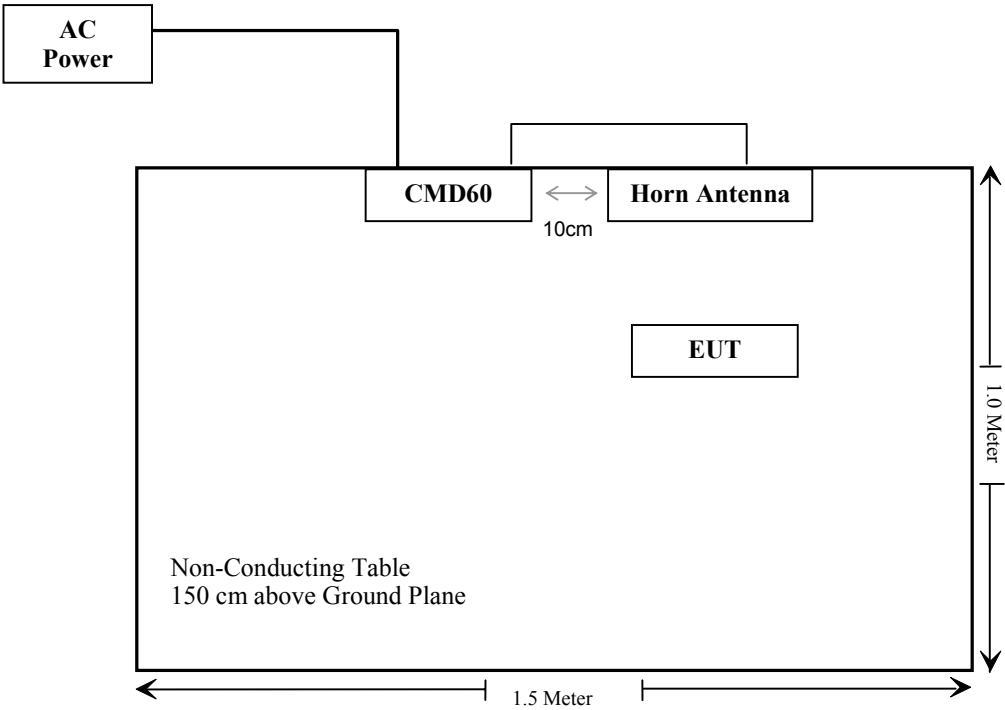
Equipment Modifications

No modifications were made to the unit tested.

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

ETSI EN 301 406 V1.5.1 (2003-07)	Description of Test	Result
§4.5.6.5	TC 12 Spurious emissions when allocated a transmit channel	Compliant
§4.5.7.7	TC 19 Spurious emissions when the PP has no allocated transmit channel	Compliant

ETSI EN 301 406 V1.5.1 (2003-07) §4.5.6.5 SPURIOUS EMISSIONS WHEN ALLOCATED A TRANSMIT CHANNEL

Applicable Standard

The requirements are given in EN 300 175-2 [5], clause 5.5.4.

Test Procedure

The peak power level of any RF emissions outside the radio frequency band allocated to DECT when a radio endpoint has been allocated a transmit channel. If a REP has more than one transceiver, any out of band transmitter intermodulation products shall also be included.

The limits and conformance requirements cover radiated emissions, radiated spurious emissions.

Method of measurement

a) The analyzing system in the LT shall be operated under the following conditions:

- frequency sweep: as required for frequency range;
- resolution bandwidth: refer to table 11;
- display bandwidth: greater than resolution bandwidth;
- averaging: refer to table 11;
- peak hold: refer to table 11;
- filtering type: synchronously tuned.

The sweep time shall be chosen to be slow enough to ensure that the LT is capable of capturing at least one burst spurious signal for every measurement point.

NOTE: This may be achieved by using the following formula:

$$\text{sweep time} > \frac{2 \times (\text{PRI} \times \text{frequency span})}{\text{resolution bandwidth}}$$

where PRI = pulse repetition interval = 10 ms.

Table 11: Measurement parameter settings

Frequency offset from edge of band	Resolution Bandwidth	Peak Hold	Averaging
0 to 2 MHz	30 kHz	on	none
2 to 5 MHz	30 kHz	on	none
5 to 10 MHz	100 kHz	on	none
10 to 20 MHz	300 kHz	on	none
20 to 30 MHz	1 MHz	on	none
30 to 4 000 MHz	3 MHz	on	none
NOTE: The highest frequency of measurement should not exceed 4 GHz for radiated measurements.			

Measurements shall not be made for transmissions on the RF channel closest to the nearest band edge for frequency offsets of up to 2 MHz.

The centre frequencies of the DECT RF channels are defined in clause 4.5.1.1.

- b) The LT shall place the EUT in a mode whereby the EUT is positioned in a LT specified slot and frequency. If so equipped, the handover function in the EUT shall be disabled (see clause 5.1.10.3 for the appropriate test message reference).
- c) The EUT shall be placed in a test mode whereby it performs the loopback function as referenced in clause 5.1.10.3. When testing a RFP, the test shall be performed either with the dummy bearer switched off when the traffic bearer is active, or with the dummy bearer placed on the same RF carrier as the traffic bearer as referenced in clause 5.1.10.4.
- d) A test modulation signal D - M2 (see clause 5.1.9.5) is generated by the LT.
- e) The LT shall initiate a power measurement procedure conforming to the limits specified in table 6 using the methods described in annex B.
- f) The test shall be carried out over the RF ranges from 30 MHz to 4 GHz and the power measurements shall be performed using the resolution bandwidth as indicated in table 11.

The spurious emissions, as measured, shall not be greater than 250 nW at frequencies below 1 GHz and 1 μ W at frequencies above 1 GHz.

In addition, not regarding up to 2 instances of a continuous - wave spurious signal for PPs for which the total peak power level shall be less than 250 nW as measured in a 3 MHz measurement bandwidth, the peak power level shall be less than 20 nW in a 100 kHz measuring bandwidth for the following broadcast bands:

- 47 MHz to 74 MHz;
- 87,5 MHz to 108 MHz;
- 108 MHz to 118 MHz;
- 174 MHz to 230 MHz;
- 470 MHz to 862 MHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Horn Antenna	DRH-118	A052604	2007-09-25	2008-09-25
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2008-03-11	2009-03-11
Rohde&Schwarz	Spectrum Analyzer	FSEM30	849720/019	2007-05-09	2008-05-09
HP	Preamplifier	8449B	3008A00277	2007-09-29	2008-09-29
HP	Signal Generator	HP8657A	2849U00982	2007-10-16	2008-10-16
HP	Amplifier	HP8447D	2944A09795	2007-11-15	2008-11-15
Giga-tronics	Signal Generator	1026	270801	2007-09-29	2008-09-29
COM POWER	Dipole Antenna	AD-100	041000	2007-09-25	2008-09-25
A.H. System	Horn Antenna	SAS-200/571	135	2008-05-17	2009-05-17
Rohde & Schwarz	Digital Radio Communication Tester	CMD60	1050.9008.60	2008-06-02	2009-06-02

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data**Environmental Conditions**

Temperature:	25 ° C
Relative Humidity:	56 %
ATM Pressure:	100.2 kPa

The testing was performed by Vicent Kang on 2008-06-05.

Test Mode: Transmitting

Please refer to below the data.

Indicated		Table	Test Antenna		Substituted			Antenna	Cable	Absolute	Limit	Margin
Frequency	Meter Reading	Angle	Height	Polar	Frequency	Level	Polar	Gain Correction	Loss	Level		
MHz	dBuV/m	Degree	Meter	H/V	MHz	dBm	H/V	dBi	dB	dBm	dBm	dB
CH5 (Outside broadcast bands)												
3780.00	55.93	135	1.4	H	3780.00	-44.6	H	6.7	2.83	-40.73	-30	10.73
3780.00	53.59	45	1.4	V	3780.00	-48.3	V	6.7	2.83	-44.43	-30	14.43
1736.06	50.23	135	1.5	V	1736.06	-50.2	V	6.2	1.21	-45.21	-30	15.21
1764.06	51.51	135	1.5	H	1764.06	-51.3	H	6.1	1.25	-46.45	-30	16.45
1752.59	51.41	140	1.4	H	1752.59	-51.4	H	6.1	1.24	-46.54	-30	16.54
2416.59	51.48	140	1.4	V	2416.59	-53.3	V	7.3	1.62	-47.62	-30	17.62
2484.12	47.51	135	1.4	H	2484.12	-53.6	H	7.3	1.71	-48.01	-30	18.01
974.780	41.18	90	1.4	H	974.780	-62.5	H	0	5.25	-67.75	-36	31.75
123.12	34.18	35	1.4	H	123.12	-68.2	H	0	1.69	-69.89	-36	33.89
123.12	33.46	45	1.5	V	123.12	-69.5	V	0	1.69	-71.19	-36	35.19
208.48	31.59	313	1.5	H	208.48	-72.6	H	0	2.06	-74.66	-36	38.66

Indicated		Table	Test Antenna		Substituted			Antenna	Cable	Absolute	Limit	Margin
Frequency	Meter Reading	Angle	Height	Polar	Frequency	Level	Polar	Gain Correction	Loss	Level		
MHz	dBuV/m	Degree	Meter	H/V	MHz	dBm	H/V	dBi	dB	dBm	dBm	dB
CH5 (In the broadcast bands)												
846.64	25.12	135	1.4	H	846.64	-70.3	H	0	4.60	-74.9	-47	27.9
511.024	25.88	45	1.4	V	511.024	-71.8	V	0	3.45	-75.25	-47	28.25
511.024	25.29	140	1.4	H	511.024	-72.1	H	0	3.45	-75.55	-47	28.55
208.48	23.56	140	1.4	V	208.48	-77.4	V	0	2.06	-79.46	-47	32.46
208.048	23.48	135	1.5	H	208.048	-77.9	H	0	2.06	-79.96	-47	32.96
504.112	23.43	135	1.4	H	504.112	-77.3	H	0	3.46	-80.76	-47	33.76
117.512	17.26	135	1.5	V	117.512	-82.4	V	0	1.68	-84.08	-47	37.08
117.503	18.10	90	1.4	H	117.503	-82.5	H	0	1.68	-84.18	-47	37.18
103.717	17.46	313	1.5	H	103.717	-83.2	H	0	1.48	-84.68	-47	37.68
68.06	11.23	35	1.4	H	68.06	-85.6	H	0	1.33	-86.93	-47	39.93
68.06	12.44	45	1.5	V	68.06	-86.3	V	0	1.33	-87.63	-47	40.63

ETSI EN 301 406 V1.5.1 (2003-07) §4.5.7.7 - SPURIOUS EMISSIONS WHEN THE PP HAS NO ALLOCATED TRANSMIT CHANNEL

Applicable Standard

The requirements are given in EN 300 175-2 [5], clause 6.7.

Test Procedure

The power level of any spurious emission when the PP has not been allocated a transmit channel.

Method of measurement

- a) The analyser controls shall be set to the following:
 - frequency span: as required for frequency range;
 - resolution bandwidth: 1 MHz (in DECT band) 100 kHz (outside DECT band);
 - video bandwidth: greater than resolution bandwidth;
 - averaging: none;
 - peak hold: on;
 - filtering type: synchronously tuned for measurements in the DECT band.
- b) The EUT shall be oriented in the reference position as determined in clause 5.1.12.3.
- c) The EUT shall be placed into a receive or idle mode for the duration of this test.
- d) The test shall be carried out across the RF range of 30 MHz to 4 GHz and the power measurements shall be performed using the resolution bandwidths as indicated in a).

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Horn Antenna	DRH-118	A052604	2007-09-25	2008-09-25
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2008-03-11	2009-03-11
Rohde&Schwarz	Spectrum Analyzer	FSEM30	849720/019	2007-05-09	2008-05-09
HP	Preamplifier	8449B	3008A00277	2007-09-29	2008-09-29
HP	Signal Generator	HP8657A	2849U00982	2007-10-16	2008-10-16
HP	Amplifier	HP8447D	2944A09795	2007-11-15	2008-11-15
Giga-tronics	Signal Generator	1026	270801	2007-09-29	2008-09-29
COM POWER	Dipole Antenna	AD-100	041000	2007-09-25	2008-09-25
A.H. System	Horn Antenna	SAS-200/571	135	2007-05-17	2008-05-17
Rohde & Schwarz	Digital Radio Communication Tester	CMD60	1050.9008.60	2008-06-02	2009-06-02

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data**Environmental Conditions**

Temperature:	25 ° C
Relative Humidity:	56 %
ATM Pressure:	100.2 kPa

The testing was performed by Vicent Kang on 2008-06-06.

Test Mode: Standby

Please refer to below the data

Indicated		Table	Test Antenna		Substituted			Antenna	Cable	Absolute	Limit	Margin
Frequency	Meter Reading	Angle	Height	Polar	Frequency	Level	Polar	Gain Correction	Loss	Level		
MHz	dBuV/m	Degree	Meter	H/V	MHz	dBm	H/V	dBi	dB	dBm	dBm	dB
1890.48	36.32	45	1.4	V	1890.48	-59.27	V	6.1	1.36	-54.53	-47	7.53
1890.64	36.00	315	1.4	H	1890.64	-59.62	H	6.1	1.36	-54.88	-47	7.88
450.98	33.56	135	1.5	V	450.98	-62.16	V	0	3.28	-65.44	-57	8.44
511.12	33.80	140	1.4	V	511.12	-63.11	V	0	3.45	-66.56	-57	9.56
450.98	26.34	135	1.5	H	450.98	-68.81	H	0	3.28	-72.09	-57	15.09
2978.12	24.94	135	1.4	H	2978.12	-69.15	H	7.3	2.22	-64.07	-47	17.07
2992.01	24.51	90	1.5	V	2992.01	-70.29	V	7.5	2.22	-65.01	-47	18.01
1413.61	21.38	135	1.4	H	1413.61	-69.76	H	6.4	1.71	-65.07	-47	18.07
206.54	23.30	140	1.4	H	206.54	-78.82	H	0	2.09	-80.91	-57	23.91

EXHIBIT A - EUT PHOTOGRAPHS

EUT - Top View



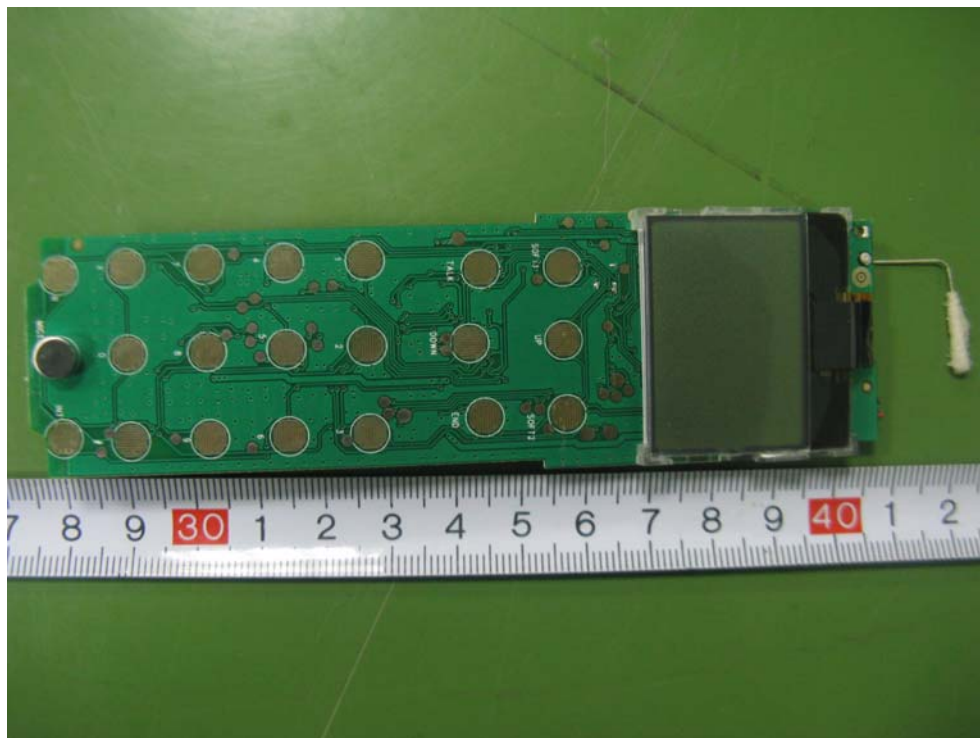
EUT - Bottom View



EUT - Cover Off View



EUT - Main Board Top Components View



EUT - Main Board Bottom Components View

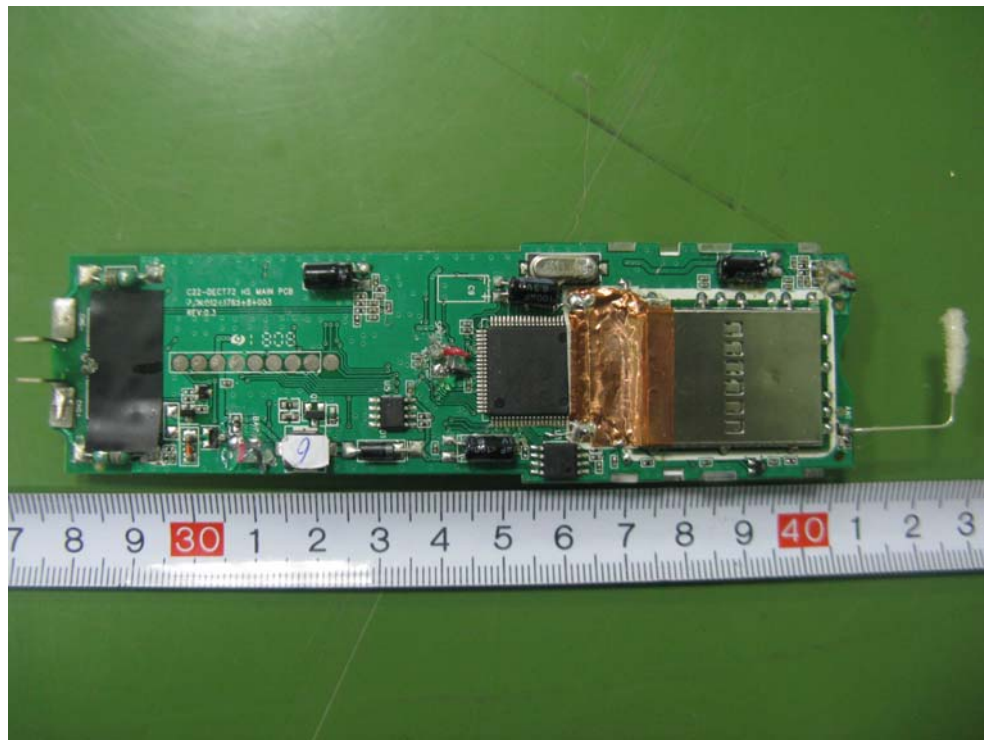


EXHIBIT B - TEST SETUP PHOTOGRAPHS

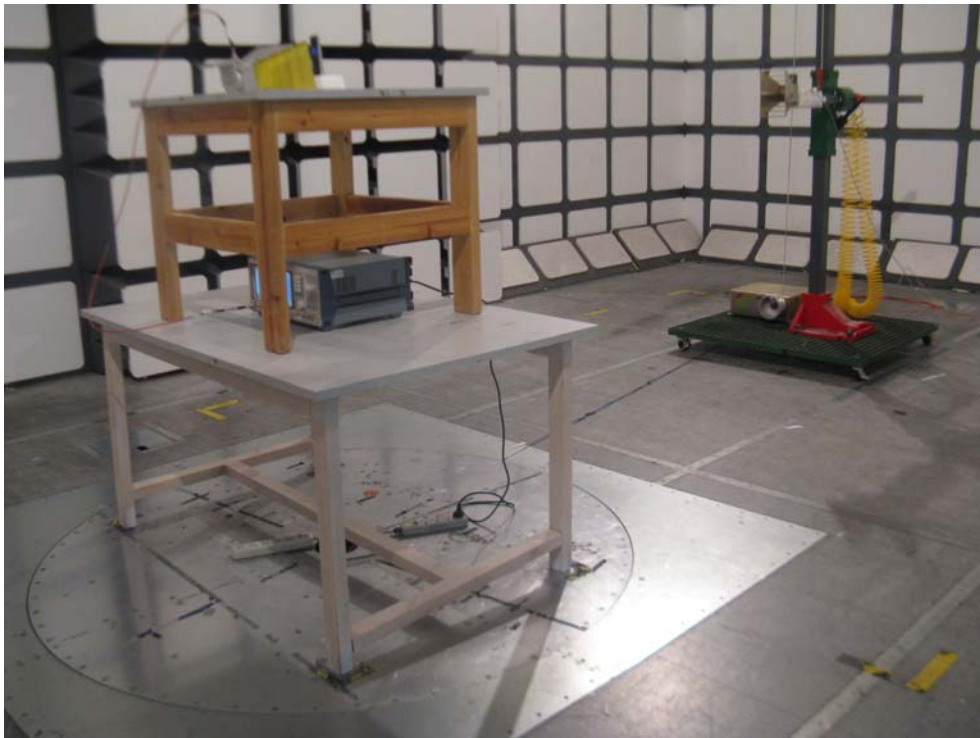
Radiated Emissions - Front View (Below 1GHz)



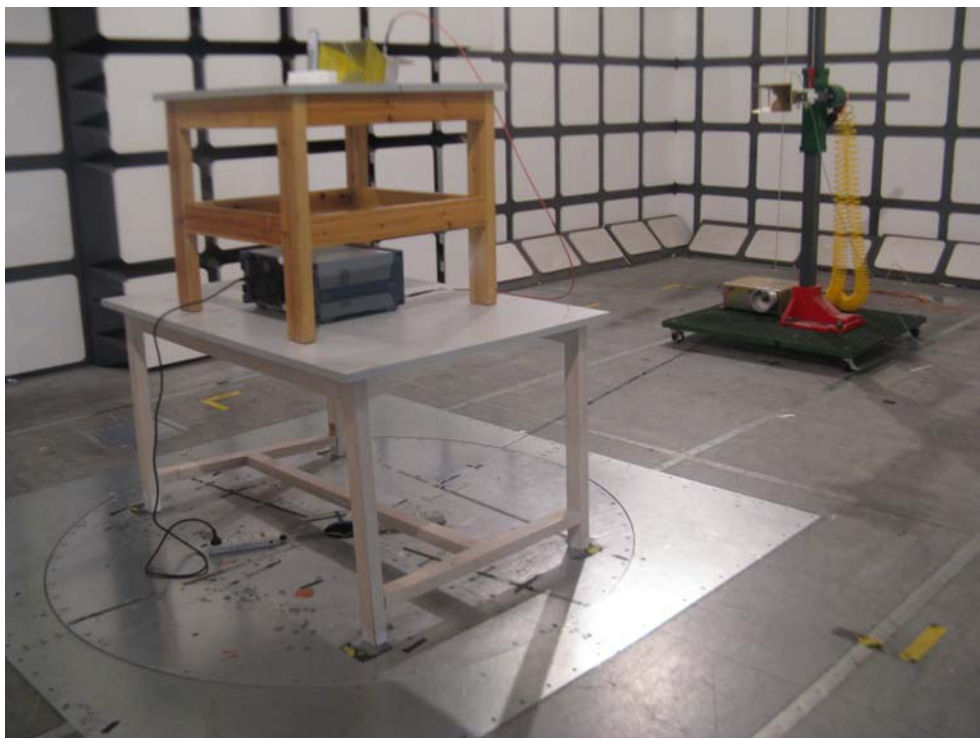
Radiated Emissions - Rear View (Below 1GHz)



Radiated Emissions - Front View (Above 1GHz)



Radiated Emissions - Rear View (Above 1GHz)



******END OF REPORT******